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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,676	11/30/2001	Hideo Hada	2001-1787A	4175

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EXAMINER

ASHTON, ROSEMARY E

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 02/21/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/996,676

Applicant(s)

HADA ET AL.

Examiner

Rosemary E. Ashton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-11 are canceled and new claims 12-17 are pending.

The rejection over Uetani is removed because it is directed to a di-polymer having the β -acrylate lactone not a terpolymer and a careful reading of the patent shows it would not have been obvious to substitute the β -acrylate lactone for the α -acrylate lactone in the terpolymer.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 12-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakanishi et al U.S. patent publication no. 2001/0016298 A1 of application no. 09/770,212 filed January 20, 2001.

In section 105, shown below, Nakanishi teaches a positive photoresist composition comprising a polymer (resin A1) having applicant's claimed monomers:

[0104] Resin Synthesis 1 (Synthesis of a 2-methyl-2-adamantyl methacrylate/3-hydroxy-1-adamantyl methacrylate/ β -methacryloyloxy- γ -butyrolactone copolymer)

[0105] In a reaction vessel, 13.8 g of 2-methyl-2-adamantyl methacrylate, 6.9 g of 3-hydroxy-1-adamantylmethacrylate and 5.0 g of β -methacryloyloxy- γ -butyrolactone were charged (molar ratio of 5:2.5:2.5). To the mixture, methyl-

As shown in sections 115 and 122, Table 1, the resin is combined with the photoacid generator p-tolyldiphenylsulfonium trifluoromethanesulfonate and a solvent mixture of PGMEA and butyrolactone (57:3) which meet the limitations of claims 14 and 15. A ratio of 57:3 is 95:5 as claimed.

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The monomer ratio of 5:2.5:2.5 meet the limitations of claim 12 because, assuming a total molar amount of 10 ($5 + 2.5 + 2.5$) the molar fraction of unit a1 is 50 mol%, a2 is 25 mol% and a3 is 25 mol % as in claim 12.

The photoresist composition also has an amine compound shown in section 92.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakanishi cited above in view of Yako et al U.S. patent no. 5,985,511.

As stated above Nakanishi teaches the composition has an amine compound such as the exemplified 2,6-diisopropylaniline, however, it does not specifically state the amine compound is a secondary amine as in claim 16.

Yako teaches a photoresist composition comprising an amine compound such as 2,6-diisopropylaniline or a secondary amine such as a dialkylamine (col. 7, lines 36-67, specifically, lines 36 and 65).

It would have been obvious to one of ordinary skill in the art to use a secondary amine in the photoresist composition of Nakanishi with a reasonable expectation of obtaining a photoresist having excellent adhesion to a substrate because Yako teaches a secondary amine and 2,6-diisopropylaniline are equivalent in the art.

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6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakanishi cited above in view of Oomori et al U.S. patent no. 6,387,587 cited in the prior office action and Yako cited above.

As stated above Nakanishi teaches the composition has an amine compound such as the exemplified 2,6-diisopropylaniline, however, it does not specifically state the amine compound is a trialkanolamine as in claim 17.

Oomori teaches a chemically amplified positive photoresist comprising an amine compound of a secondary amine, a tertiary amine or a tertiary alkanol amine (called a trialkanolamine by applicant).

It would have been obvious to one of ordinary skill in the art to use trialkanolamine in the invention of Nakanishi with a reasonable expectation of obtaining a chemically amplified positive photoresist having excellent adhesion to the substrate because Oomori teaches a trialkanol amine and a secondary amine are equivalent in the art and Yako teaches a secondary amine and 2,6-diisopropylaniline are equivalent in the art.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosemary E. Ashton whose telephone number is 308-2057. The examiner works a flexible work schedule and can normally be reached M-F between 10:00 am and 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on 308-2303. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.



Rosemary E. Ashton
Primary Examiner
Art Unit 1752

rea
February 13, 2003

**ROSEMARY ASHTON
PRIMARY EXAMINER**